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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/542,042	03/31/2000	Jae-yoon Sim	SEC.701	4063
20987	7590	08/25/2004	EXAMINER	
VOLENTINE FRANCOS, PLLC ONE FREEDOM SQUARE 11951 FREEDOM DRIVE SUITE 1260 RESTON, VA 20190			KUMAR, PANKAJ	
			ART UNIT	PAPER NUMBER
			2631	8

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/542,042

Applicant(s)

SIM ET AL.

Examiner

Pankaj Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10, 16-22 is/are allowed.
- 6) ☒ Claim(s) 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 11 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Workman 4,181,822 in view of Dodds 5,841,841.
4. As per claim 11, Workman teaches a high frequency equalizer, comprising: a restoring circuit for demultiplexing (Workman fig. 5: 108) input data (Workman fig. 5: output of 66) into a plurality of input data items (Workman fig. 5: output of 108) each having a time difference the same as period of the input data (Workman fig. 5: 72 sec1, sec2, sec3 refers to sections 1 to 3; col. 31 lines 6-25: clocking bits or elements into the memory sections- thus, each bit or element clocked is the input data and the length of the clocking is the period of the input data; since the clock for the input of data into 108 (i.e. data1 at time 1, data2 at time 2, etc.) is the same as the clock for the input data items into the memory sections (i.e.. demultiplexeddata1 into memosec1 at time 1+delta, demultiplexeddata2 into memosec2 at time 2+delta, etc.), the period between the input data and the input data items will also remain the same and thus the time difference

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between the input data items will be the same as the period of the input data.), restoring lost high frequency components (this is not in Workman but it would be obvious as explained below) of the plurality of demultiplexed input data items, and outputting restored input data items in response to restoring clock signals (Workman fig. 5: 72 outputs in response to 74); and a multiplexer for multiplexing the restored input data items and sequentially outputting multiplexed data items one by one as restored input data, in response to the restoring clock signals (Workman cols. 12-13: “translating means for placing said first narrow-band signal into an at least partially time-coincident relationship with said further narrow-band signals.”; fig. 5: 109 operates in response to 74).

5. Workman does not teach restoring lost high frequency components. Dodds teaches restoring lost high frequency components with an equalizer (Dodds col. 10 lines 57-62). It would have been obvious to one skilled in the art at the time of the invention to modify Workman with the teachings of Dodds by putting Dodds fig. 4 between elements 72 and 75” in fig. 5 of Workman if the multiplexer was far from the demultiplexer. One would be motivated to do so for the reason taught in Dodds – to restore nominal square pulse shape to have less data degradation when data travels over long distances (Dodds generally col. 10 4th paragraph).

6. As per claim 12, Workman teaches a high frequency equalizer, as recited in claim 11, wherein the restoring circuit comprises: a demultiplexer for demultiplexing the input data into the plurality of input data items in response to the restoring clock signals (Workman fig. 5: 108, “time-coincident relationship”; 108 demultiplexes in response to clock signals from 74); and a plurality of unit restoring circuits (Workman fig. 5: memosec1, memosec2, memosec3 - 72) operating in response to the corresponding restoring clock signal (Workman fig. 5: 72 operates in

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response to 74 clock), for receiving current input data items of a current time and previous input data of a previous period of time (Workman fig. 5: 72 has data for current time in one section and previous time in another section), restoring the lost high frequency component of the current input data item (this is not in Workman but it would be obvious as explained below), and outputting restored input data items (Workman col. 12: "... storing ... separate narrowband signals ..."; fig. 5: output of 72, 109).

7. Workman does not teach restoring the lost high frequency component of the current input data item. Dodds teaches restoring the lost high frequency component of the current input data item with an equalizer (Dodds col. 10 lines 57-62). It would have been obvious to one skilled in the art at the time of the invention to modify Workman with the teachings of Dodds by putting Dodds fig. 4 between elements 72 and 75'' in fig. 5 of Workman if the multiplexer was far from the demultiplexer. One would be motivated to do so for the reason taught in Dodds – to restore nominal square pulse shape to have less data degradation when data travels over long distances (Dodds generally col. 10 4th paragraph).

8. Note that it is appropriate for the various limitations in both claims 11 and 12 to point to the same elements from the reference since for example in claim 11, the restoring circuit is FOR demultiplexing while in claim 12, the restoring circuit comprises a demultiplexer.

Allowable Subject Matter

1. Claims 1-10 and 16-22 are allowed.
2. Claims 13, 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
3. The following is a statement of reasons for the indication of allowable subject matter:
The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with the following underlined portions:
4. and a high frequency equalizer for restoring lost high frequency components of input data input through the input and output terminal in response to the restoring clock signals and outputting the restored input data
5. and a second current output transistor commonly connected to a third output terminal of the first current amplifying circuit and a fourth output terminal of the second current amplifying circuit, for outputting a second difference current proportional to the difference between the currents output from the third and fourth output terminals.

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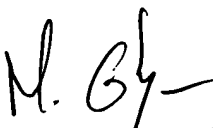
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Mon, Tues, Wed and Thurs after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (703) 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PK


MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER